REMARKS

The present application was filed on February 19, 2002 with claims 1 through 37. Claims 1 through 37 are presently pending in the above-identified patent application. Claims 1, 13, 16, 26-28, 31, 35, and 37 are proposed to be amended herein.

In the Office Action, the Examiner rejected claims 26-33, 35, and 36 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner rejected claims 1-33 and 36-37 under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. The Examiner rejected claims 1-7, 12, 16, 19-22, 34, and 36 under 35 U.S.C. §103(a) as being unpatentable over Tran (United States Patent Number 6,202,060), and further in view of Piersol (United States Patent Number 6,775,665), rejected claims 8, 11, 13-15, 17-18, 23, and 25 under 35 U.S.C. §103(a) as being unpatentable over Tran, in view of Piersol and in view of Keith (United States Patent Number 6,629,097), and rejected claims 26-33, 35, and 37 under 35 U.S.C. §103(a) as being unpatentable over Tran, and in view of Platt et al. (United States Patent Number 5,812,698). The Examiner indicated that claims 9-10 and 24 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

The specification has been amended to correct typographical errors.

Form PTO-892

Applicants note that the Examiner did not list a cited reference (Piersol; United States Patent Number 6,775,665) in the List of References Cited (Form PTO-892), and respectfully request that the Examiner provide an updated PTO-892 form.

Section 112 Rejections

Claims 26-33, 35, and 36 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. In particular, the Examiner asserts that the specification on page 29, lines 2-27, does not support the first word stack, second word stack, and third word stack as well as first handwriting recognizor and second handwriting recognizor.

The specification has been amended to recite that

> a first word stack can be created from at least one word by using a first handwriting recognizor, and a second word stack can be created from at least one word by using a second handwriting recognizor.

A determination of whether a document should be retrieved can then be made by comparing the first and second word stacks with a third word stack.

Support for this amendment can be found in originally filed claim 26. No new matter is introduced.

Section 101 Rejections

Claims 1-33 and 36-37 were rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. In particular, the Examiner asserts that the preamble "a method" as recited in claims 1, 13, 16, and 23 (26) is not technologically embodied to a computer, and that the preamble "a computer program code" recited in claims 36-37 is "not a non-tangible medium embodied to computer."

The Invention Accomplishes a Practical Application

The cited claims are directed to methods for determining a measure between a document stack and a query stack and are directed to methods for determining whether a handwritten document should be retrieved, and are directed to the technological arts. Applicant also notes that the Supreme Court has stated that the "[t]ransformation and reduction of an article 'to a different state or thing' is the clue to patentability of a process claim." *Gottshalk v. Benson*, 409 U.S. 63, 70, 175 U.S.P.Q. (BNA) 676 (1972). In other words, claims that require some kind of transformation of subject matter, which has been held to include intangible subject matter, such as data or signals, that are representative of or constitute physical activity or objects have been held to comply with Section 101. *See, for example, In re Warmerdam,* 31 U.S.P.Q.2d (BNA) 1754, 1759 n.5 (Fed. Cir. 1994) or *In re Schrader*, 22 F.3d 290, 295, 30 U.S.P.Q.2d (BNA) 1455, 1459 n.12 (Fed. Cir. 1994).

The cited claims require determining a measure between a document stack and a query stack and determining whether a handwritten document should be retrieved. This transformation to determine a measure and to determine whether a handwritten document should be retrieved in this manner are useful, concrete, and tangible results. See, e.g., USPTO Examination Guidelines for Computer-Related Inventions," (hereinafter, "Guidelines") § II. A.

Statutory Process Claims

The Guidelines establish that "[t]o be statutory, a claimed computer-related process must **either**: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application within the technological arts. Guidelines, § IV(2)(b). The Examiner has considered only the second portion of this test.

The claimed process clearly results in a physical transformation outside of a computer for which a practical application in the technological arts is either disclosed in the specification or would have been apparent to a person of ordinary skill in the art. Again, the cited claims require determining a measure between a document stack and a query stack and determining whether a handwritten document should be retrieved. Further, the cited steps are clearly physical steps recited in the body of the claim.

In any case, claims 1, 13, 16, and 26 have been amended to be directed to a *computer-implemented* method and are thus technically embodied to a computer. Applicants note that claims 36 and 37 are directed to an article of manufacture comprising: a computer readable medium having *computer-readable code means embodied thereon*, the computer-readable program code means comprising recited steps. Thus, claims 36 and 37 are already technically embodied to a computer.

Thus, Applicant submits that each of the claims 1-37 are in full compliance with 35 U.S.C. §101, and accordingly, respectfully requests that the rejection under 35 U.S.C. §101 be withdrawn.

Independent Claims 1, 13, 16, 26, 34-37

Independent claims 1, 16, 34, and 36 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tran, and further in view of Piersol, independent claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over Tran, in view of Piersol and in view of Keith, and claims 26, 35, and 37 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tran, and in view of Platt et al.

Regarding claims 1, 34, and 36, the Examiner asserts that Tran teaches "creating a document stack from at least one word in a handwritten document" (FIG. 22, col. 31, line 66, to col. 32, line 16), and "creating a query stack from a query" (FIG. 1;

col. 10, line 16). The Examiner acknowledges that Tran does not explicitly teach determining the measure between document and query stacks, but asserts that Piersol teaches this limitation (FIGS. 8 and 9A; col. 13, lines 20-31 and 54-59). Regarding claims 26, 35, and 37, the Examiner asserts that Tran teaches creating a first word stack by using a first handwriting recognizor from at least one word, creating a second word stack by using a second handwriting recognizor from at least one word, and comparing the first and second word stacks with a third word stack to determine whether a handwritten document should be retrieved (FIG. 22, col. 31, line 66, to col. 32, line 16).

Applicants note that the present disclosure teaches that,

> in step 120, the query is converted to one or more query stacks. *A query stack is a recognition stack having a number of words and, for each word, a word score. Basically, a recognition stack represents the text words, which a handwriting recognition engine determines from an ink word, that are* ***the most likely set of possible text words*** *corresponding to the ink word. In general, a recognition stack contains all possible words known to a handwritten recognition system.* In practice, the recognition stacks are subjected to a word score threshold or a rank threshold, which essentially truncates the recognition stacks.
> (Page 7, lines 6-13.)

Applicants also note that the present disclosure teaches that

> *the term "document stack" will be used for a recognition stack* ***determined from a document****.* Again, a document stack is an N-best list as described above. It should be noted that, in general, there will be multiple recognition stacks per query or per document.
> (Page 7, line 27, to page 8, line 3.)

Thus, query stacks and document stacks are recognition stacks that represent the text *words* which a handwriting recognition engine determines from an ink word, that are the most likely set of possible text words corresponding to the ink word. In general, a recognition stack contains all possible words known to a handwritten recognition system. Thus, at least one of the recognized words is represented by **more than one word** in the stack. Tran does ***not*** disclose or suggest that a *stack contains more than one word corresponding to one of the recognized words*, and does not disclose or suggest that stacks represent the text *words* which a handwriting recognition engine determines from an ink word, that are the most likely set of possible text words corresponding to the ink word. In addition, Piersol does not disclose or suggest

determining a measure between ***document and query stacks***, as defined in the present invention. Independent claims 1, 13, 34, and 36, as amended, require creating a *document stack* from at least one word in a handwritten document; creating a *query stack* from a query; and determining a measure between the *document stack and the query stack.* Independent claim 16, as amended, requires creating at least one *query stack* from a query comprising one or more words, wherein each word is handwritten or typed; selecting a handwritten document from the set of handwritten documents; selecting a *document stack* from the selected handwritten document; and determining a measure between the at least *one query stack and the selected document stack.* Independent claims 26, 35, and 37, as amended, require creating a first *word recognition stack*, by using a first handwriting recognizer, from at least one word; creating a second *word recognition stack*, by using a second handwriting recognizer, from the at least one word; and comparing the first and second word recognition stacks with a third *word recognition stack* to determine whether a handwritten document should be retrieved. (Claims 27 and 28 have been amended to provide proper antecedent basis for terms recited in amended claim 26.)

Thus, Tran and Piersol, alone or in combination, do not disclose or suggest creating a document stack from at least one word in a handwritten document; creating a query stack from a query; and determining a measure between the document stack and the query stack, as required by independent claims 1, 13, 34, and 36, as amended, do not disclose or suggest creating at least one query stack from a query comprising one or more words, wherein each word is handwritten or typed; selecting a handwritten document from the set of handwritten documents; selecting a document stack from the selected handwritten document; and determining a measure between the at least one query stack and the selected document stack, as required by independent claim 16, as amended, and do not disclose or suggest creating a first word recognition stack, by using a first handwriting recognizer, from at least one word; creating a second word recognition stack, by using a second handwriting recognizer, from the at least one word; and comparing the first and second word recognition stacks with a third word recognition stack to determine whether a handwritten document should be retrieved, as required by independent claims 26, 35, and 37, as amended.

Additional Cited References

Keith was also cited by the Examiner for its disclosure that "each of the query and document stacks comprises a plurality of words, wherein the measure uses edit distances to compare words in the query stack to words in the documents stack" (col. 20, lines 20-26). Applicants note that Keith is directed to a system for discerning and displaying relational structure and conceptual similarities among items in a target group of data items (see, Abstract). Keith does ***not*** disclose or suggest *query stacks or document stacks*, as defined in the present disclosure, and does ***not*** disclose or suggest that a *stack contains more than one word corresponding to one of the recognized words.* In addition, Keith does not disclose or suggest determining the measure between document and query stacks, as defined in the present invention.

Thus, Keith does not disclose or suggest creating a document stack from at least one word in a handwritten document; creating a query stack from a query; and determining a measure between the document stack and the query stack, as required by independent claims 1, 13, 34, and 36, as amended, does not disclose or suggest creating at least one query stack from a query comprising one or more words, wherein each word is handwritten or typed; selecting a handwritten document from the set of handwritten documents; selecting a document stack from the selected handwritten document; and determining a measure between the at least one query stack and the selected document stack, as required by independent claim 16, as amended, and does not disclose or suggest creating a first word recognition stack, by using a first handwriting recognizer, from at least one word; creating a second word recognition stack, by using a second handwriting recognizer, from the at least one word; and comparing the first and second word recognition stacks with a third word recognition stack to determine whether a handwritten document should be retrieved, as required by independent claims 26, 35, and 37, as amended.

Platt et al. was also cited by the Examiner for its disclosure of a "handwriting recognizing system using the input device as tablet on which characters are formed using a pen-like stylus" (FIG. 1; col. 3, line 66, to col. 4, line 3). Applicants note that Platt is directed to a system for recognizing handwritten characters, including pre-processing apparatus for generating a set of features for each handwritten character, a

neural network disposed for operating on sparse data structures of those features and generating a set of confidence values for each possible character symbol which might correspond to the handwritten character, and post-processing apparatus for adjusting those confidence values and for selecting a character symbol consistent with external knowledge about handwritten characters and the language they are written in. (See, abstract.) Platt does ***not*** disclose or suggest *query stacks or document stacks*, as defined in the present disclosure, and does ***not*** disclose or suggest that a *stack contains more than one word corresponding to one of the recognized words*. In addition, Platt does not disclose or suggest determining the measure between document and query stacks, as defined in the present invention.

Thus, Platt et al. do not disclose or suggest creating a document stack from at least one word in a handwritten document; creating a query stack from a query; and determining a measure between the document stack and the query stack, as required by independent claims 1, 13, 34, and 36, as amended, do not disclose or suggest creating at least one query stack from a query comprising one or more words, wherein each word is handwritten or typed; selecting a handwritten document from the set of handwritten documents; selecting a document stack from the selected handwritten document; and determining a measure between the at least one query stack and the selected document stack, as required by independent claim 16, as amended, and do not disclose or suggest creating a first word recognition stack, by using a first handwriting recognizer, from at least one word; creating a second word recognition stack, by using a second handwriting recognizer, from the at least one word; and comparing the first and second word recognition stacks with a third word recognition stack to determine whether a handwritten document should be retrieved, as required by independent claims 26, 35, and 37, as amended.

Dependent Claims 2-12, 14-15, 17-25 and 27-33

Dependent claims 2-7, 12, and 19-22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tran, and further in view of Piersol, claims 8, 11, 14-15, 17-18, 23, and 25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tran, in view of Piersol and in view of Keith, and claims 27-33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tran, and in view of Platt et al.

Claims 2-12, 14-15, 17-25 and 27-33 are dependent on claims 1, 13, 16, and 26, respectively, and are therefore patentably distinguished over Tran, Piersol, Keith, and Platt et al. (alone or in any combination) because of their dependency from amended independent claims 1, 13, 16, and 26 for the reasons set forth above, as well as other elements these claims add in combination to their base claim.

All of the pending claims, i.e., claims 1-37, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,

Date: June 27, 2005

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